



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/723,332	11/26/2003	John Williams	DPL-043	9485
21323	7590	11/02/2004	EXAMINER	
TESTA, HURWITZ & THIBEAULT, LLP HIGH STREET TOWER 125 HIGH STREET BOSTON, MA 02110			VERBITSKY, GAIL KAPLAN	
			ART UNIT	PAPER NUMBER
			2859	

DATE MAILED: 11/02/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/723,332

Applicant(s)

WILLIAMS ET AL.

Examiner

Gail Verbitsky

Art Unit

2859

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-14 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-14 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. ____.
 - ☒ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 03/08/04, 08/09/04.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: ____.

DETAILED ACTION

Claim Objections

1. Claims 11-12 are objected to because of the following informalities: perhaps applicant should replace "a sample" in lines 2 with –the sample—for a proper antecedent basis. Appropriate correction is required.

Claim Rejections - 35 USC § 102

2. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

3. Claims 8 and 10 are rejected under 35 U.S.C. 102(b) as being anticipated by Smith et al. (S. 6189367) [hereinafter Smith].

Smith discloses a device and a method in the field of applicant's endeavor comprising a flexural plate wave mass sensor comprising a sample holding region, a plate wave reference sensor, a heat spreader 6 configured to conduct heat (and thus, to heat) and substantially evenly spread it to the mass sensor and reference sensor. The device also comprises heat flow/ temperature sensors being thermopiles. In addition, the device comprises an analyzer.

4. Claims 1-4, 8-10, 13-14 are rejected under 35 U.S.C. 102(b) as being anticipated by Tuller et al. (U.S. 6370955) [hereinafter Tuller].

Art Unit: 2859

Tuller discloses in Fig. 1 a device/ TGA chamber, the device in the field of applicant's endeavor comprising a first resonator (flexural plate wave mass sensor) 10 and a reference resonator (flexural wave mass sensor) 11 to determine mass change in a sample/ workpiece 16. The device also comprises a heater 24 evenly heating the resonators and the sample, wherein the heater is in thermal communication with an air gap between the heater and the resonators, thus, inherently; the air gap serves as a heat spreader. The device determines the mass change of the sample by frequency difference between the resonators 10 and 11 (col. 5, lines 20-21). This would imply that the device has some means in communication with both resonators to determine the mass change caused by the heater. Tuller teaches to cycle the sample through a range of elevated temperatures (vary heating) and monitor the mass change according to temperature change (col. 5, lines 25-30, col. 6, lines 1-5). This would imply that the heater output varies as desired by an operator, and thus, controlled by a control unit according to an analytical protocol. This would also imply that, the temperature ramp up and rump down with a predetermined time-temperature pattern.

The method steps will be met during the normal operation of the device stated above.

Claim Rejections - 35 USC § 103

5. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

6. Claim 9 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith et al. (.S. 6189367) [hereinafter Smith] in view of reading (U.S. 5346306) [hereinafter Reading 1].

Smith discloses a device and a method in the field of applicant's endeavor comprising a flexural plate wave mass sensor comprising a sample holding region, a plate wave reference sensor, a heat spreader 6 configured to conduct heat (and thus, to heat) and substantially evenly spread it to the mass sensor and reference sensor. The device also comprises heat flow/ temperature sensors being thermopiles. The device also comprises an analyzer.

Smith does not explicitly teach that the reference sensor output is subtracted from the mass sensor output, as stated in claim 9.

Reading 1 states that it is known to determine a sample heat flow/ output signal (in or out), a reference heat flow/ output signal (in or out), and to record/ determine a temperature dependent difference (result of subtraction) between the output signals.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Smith, so as to determine difference between the sample output signal and the reference output signal, as taught by Reading 1, in order to evaluate the sample as compared to the reference with a known behavior, so as to obtain the sample behavior pattern, as well known in the art.

The method steps will be met during the normal operation of the device stated above.

7. Claims 11-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Blaine (U.S. 6336741).

Smith discloses the device as stated above in paragraph 3.

Smith does not explicitly teach the limitations of claims 11-14.

Blaine discloses a device in the field of applicant's endeavor. Blaine determines in Fig. 3 weight/ time response of a sample at the modulated temperature heat/ mass/ time response graph (characterization) of the sample, inherently, based on the determined mass in relation to a predetermined time-temperature corresponding to the heater control (in accordance with some desired protocol).

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Smith, so as to determine a heat/ mass/ time response of the sample, as taught by Blaine, in order to evaluate the sample's behavior pattern, as well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Smith, so as to control the heating of the sample in accordance with a desired protocol and temperature pattern, as taught by Blaine, in order to evaluate the sample's behavior pattern depending on temperature and time, as well known in the art.

The method steps will be met during the normal operation of the device stated above.

8. Claim 13 is rejected under 35 U.S.C. 103(a) as being unpatentable over Smith in view of Bowers et al. (U.S. 5476002) [hereinafter Bowers].

Smith discloses a device as stated above in paragraph 3.

Smith does not explicitly teach that the heating is controlled, as stated in claims 13-14.

Bowers discloses a device in the field of applicant's endeavor wherein the heating of the resonator is controlled, so as to maintain a preset temperature (in accordance with a protocol, in accordance with a predetermined temperature.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Smith, so as to control the heating of the sample in accordance with an analysis protocol and temperature pattern, as taught by Bowers, in order to evaluate the sample's behavior pattern depending on temperature and time, as well known in the art.

The method steps will be met during the normal operation of the device stated above.

9. Claim 5 is rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller in view of Reading (U.S. 5474385) [hereinafter Reading 2].

Tuller discloses the device as stated above in paragraph 4.

Tuller does not explicitly teach a temperature sensor in thermal communication with a first resonator and a temperature sensor with a reference resonator, as stated in claim 5.

Reading 2 discloses in Fig. 1 a device wherein a temperature sensing is sensing temperature of a sample holder and another temperature sensor sensing

Art Unit: 2859

temperature of a reference, so as to produce a temperature difference between the sample and reference and regulate a heater.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to add temperature sensors to the sample and the reference, as taught by Reading 2, so as to obtain temperature difference between the sample and the reference, and thus, to obtain the correct measurement of the sample property by comparing it with a reference.

10. Claims 6-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller in view of Reading 2.

Tuller and Reading 2 disclose the device as stated above in paragraph 9.

They do not explicitly teach the limitations of claims 6-7.

With respect to claims 6-7: having a plurality (array) of flexural wave mass sensors and references, absent any criticality, is only considered to be an obvious modification of the device disclosed by Tuller and Nakamura. It would have been obvious to one having ordinary skill in the art at the time the invention was made to duplicate the number of flexural wave mass sensors and references, since it has been held that mere duplication of essential working parts of a device involves only routine skill in the art. See In re St. Regis Paper Co. v. Bemis Co., Inc., 193 USPQ 8, 11 (7th. Cir. 1977).

Art Unit: 2859

11. Claims 5, 11-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Tuller in view of Reading 2.

Tuller discloses the device as stated above in paragraph 4.

Tuller does not explicitly teach the limitations of claims 5, 11-12.

Reading 2 discloses a device in the field of applicant's endeavor. Reading 2 determines a heat/ mass response graph (characterization) of a sample or heat-mass-time response, as shown in Figs. 20-21, based on the determined mass in relation to a predetermined time-temperature corresponding to the heater control (in accordance with some desired protocol). Although, the graph (characterization) in Figs. 20-21, does not explicitly show the mass, it is well known in the art, that the heat capacity is a mass related parameter.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Tuller, so as to determine a heat/ mass/ time response of the sample, as taught by Reading 2, in order to evaluate the sample's behavior pattern, as well known in the art.

Therefore, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method, disclosed by Tuller, so as to control the heating of the sample in accordance with a desired protocol and temperature pattern, as taught by Reading 2, in order to evaluate the sample's behavior pattern depending on temperature and time, as well known in the art.

The method steps will be met during the normal operation of the device stated above.

Art Unit: 2859

Conclusion

12. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. The prior art cited in the PTO-892 and not mentioned above disclose related devices and methods.

Any inquiry concerning this communication should be directed to the Examiner Verbitsky who can be reached at (571) 272-2253 Monday through Friday 8:00 to 4:00 ET.

GKV

Gail Verbitsky

Primary Patent Examiner, TC 2800



October 23, 2004